Q. Sunnyside Replacement Equipment: Please: (a) verify that Hydro had assumed over the years that the gassing in its 125MVA transformers was caused by leakage of gas-containing oil, via the tap changer bushings or compartment gaskets, from the tap changer compartment into the main transformer oil, (b) verify that Hydro had not replaced the gaskets on the transformers before 2014, (c) verify that in 2014, Hydro *did* replace the gaskets for the tap changer bushings, or compartment on one of the 125MVA transformers, (d) explain if Hydro replaced the tap changer gaskets on a 125MVA transformer in 2014, whether that corrected the transformer, and (f) explain the justification for not implementing projects for replacing leaking tap changer gaskets years ago, when the gassing condition was first identified.

A. (a) Yes, Hydro has assumed that the gassing in its 125MVA transformers was caused by leakage of gas-containing oil, via the tap changer bushings or compartment gaskets, from the tap changer compartment into the main transformer oil. After discussions with a transformer OEM, and the fact we had many years of low-level gassing data, it was the OEM's opinion that it appeared to be gas migrating from the tap changer compartment to the main transformer tank. To prove this, it was recommended to perform a pressure test of the tap changer compartment. The pressure test was originally planned to be completed in 2014; however, due to the OEM's schedule, this was delayed into 2015 and it is now planned for April/May time frame, when transformers can be removed from service with minimal impact on the system.

(b) (c) (d) (e) Hydro has not implemented projects for replacing leaking tap changer gaskets due to what was considered stable low levels of gassing and the fact that gassing was assumed to be migrating from the tap changer compartment and not a

result of an internal transformer incipient fault. From the gas results Hydro has been tracking, there have been transformers that have experienced low level gassing dating back to 1979. As a result of this data, it was accepted that this was a common characteristic seen in transformers with tap changers and therefore no further action was taken. Replacing the gaskets also introduces risks to the integrity of the transformer due to the requirement to drain the transformer oil and enter the transformer. Therefore, Hydro has taken the approach to monitor the gas levels so that increasing gassing levels, which may indicate an incipient fault, are identified and acted upon. However, in order to confirm this long-standing assumption, as mentioned above, Hydro is following the recent OEM recommendations to perform a pressure test of the tap changer compartment.